

VAX CONFIGURATION UTILITY

(IVV000) USER'S GUIDE



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1.1 Introduction

This manual is designed to serve as a guide for those using the Emulex VAX configuration utility, IVV000, on Digital Equipment Corporation (DEC) VAX-11, VAX-8600, and MicroVAX computers. IVV000 is designed to run under the Emulex VAX Monitor, EVM; the Emulex VAX 8600 Monitor, EVM 8600; and the Emulex MicroVAX Monitor, uEVM.

This diagnostic autosizer program is designed for use by qualified installers of Emulex equipment, and thus it assumes that the user has some knowledge of hardware configurations, VAX architecture and terminology, and interpretation of error messages and device register contents.

This document contains two main sections:

Section 1 (General Description): This section contains an overview of IVV000, including its functions, distribution media, hardware and software compatibility, and related documentation.

Section 2 (Operation): Describes the operation of the IVV000 configuration utility program, including load and start procedures and a sample dialogue.

1.2 Product Overview

The purpose of the IVV000 diagnostic is to print a map of all populated and unpopulated input/output devices, so that the operator can determine the hardware configuration of the system.

1.3 Distribution Media

The following table lists and describes the distribution media for IVV000 and other Emulex VAX and MicroVAX diagnostic software.

Table 1-1. Software Distribution Media

Kit Number	Emulex Part No.	Description
VX9951801-01	VX9960406-01 VX9960406-02 VX9960405-00	TU58 cassette for VAX 730/750 TU58 cassette for VAX 730/750 TU58 cassette for VAX 730/750
VX9951801-02	VX9960506-01 VX9960506-02 VX9960505-00	8-inch floppy disk for VAX 750/780 8-inch floppy disk for VAX 750/780 8-inch floppy disk for VAX 750/780
VX9951804-01	VX9960721-01 VX9960721-02	5.25-inch floppy disk for MicroVAX 5.25-inch floppy disk for MicroVAX
VX9951804-02	VX9962021-00	TK50 cartridge for MicroVAX I, II, and III

NOTE

For MicroVAX III installations, only Revision B or later of the TK50 cartridge may be used.

1.4 Compatibility

1.4.1 Hardware

IVV000 is an autosizer for all VAX buses. It is compatible with DEC VAX 11/730, 11/750, 11/780, and 8600, MicroVAX I, II, and III computers.

1.4.2 Software

IVV000 is designed to run with the Emulex VAX diagnostic monitor, EVM, with EVM 8600, and with the Emulex MicroVAX diagnostic monitor, MicroEVM. For information regarding these diagnostic monitors, see the user's guides referenced in subsection 1.5.

1.5 Related Documentation

Following is a list of the documentation for the EVM software that is used with the IVV000 configuration utility on different systems:

Title: *Emulex VAX Monitor (EVM) User's Guide*
Publication Number: VX9950901-00

Publisher: Emulex Corporation
3545 Harbor Blvd.
Costa Mesa, CA 92626
(714) 662-5600 TWX 910-595-2521

Title: *Emulex VAX-8600 Monitor (EVM 8600) User's Guide*
Publication Number: VX9950924-00

Publisher: Emulex Corporation
3545 Harbor Blvd.
Costa Mesa, CA 92626
(714) 662-5600 TWX 910-595-2521

Title: *Emulex MicroVAX Monitor (uEVM) User's Guide*
Publication Number: VX9950910-00

Publisher: Emulex Corporation
3545 Harbor Blvd.
Costa Mesa, CA 92626
(714) 662-5600 TWX 910-595-2521

Title: *VAX Hardware Handbook*
Publication Number: EB-21710-20

Publisher: Digital Equipment Corporation
Corporate Headquarters
Maynard, MA 01754
(617) 897-5111

2.1 Overview

This section describes the IVV000 load and start procedures, and explains sample program output.

User input appears in **bold type**, in order to distinguish it from IVV000 or EVM output. The symbol **<return>** represents the carriage return key.

2.2 LOAD and START Procedures

The procedure used to invoke EVM varies from one VAX system to another. For a description of EVM bootstrapping procedures, see the EVM user's guide (reference given in subsection 1.5).

After the **EVM>** prompt has appeared on the screen, you can obtain information regarding EVM commands by typing:

EVM>HELP<return>

To load and start IVV000, type the following. (The default extension is .EXE.)

EVM>LOAD IVV000<return>

EVM>START<return>

The **START** command may be abbreviated **ST**. Because IVV000 is an autosizer, it requires no **SET CONFIGURATION** statement in order to run.

2.3 Sample Output

For definitions of technical terms and acronyms used in this subsection, please refer to the VAX Hardware Handbook (reference given in subsection 1.5).

Statements that appear on the right-hand side of the page, preceded by exclamation points, are explanatory comments rather than IVV000 output. They are provided here in order to clarify the significance of the output. In subsection 2.3.2, for example, note that there is only one attention summary (AS) register for all eight possible devices. Thus the device 0 AS register responds for drives 2 through 7, even though the devices do not exist.

IVV000 sample output is shown only for VAX-11 systems. Output for MicroVAX systems is similar in appearance.

2.3.1 VAX-11/730

The sample output presented in this subsection refers to a VAX-11/730 with the following configuration:

- One UDA50 disk drive at address 772150₈
- One DMF32 communications multiplexer at address 760340₈
- One TU80 tape drive at address 772520₈

To start the utility, enter the following LOAD and START commands:

```
EVM>LOAD IVV000<return>
EVM>START<return>
```

The following display will result:

```

Emulex Config Utility  REV 1.0  dd-mmm-yyyy Time

TEST # 1  Configuration Utility
         dd-mmm-yyyy Time

-----CONFIG-----

CPU ID = 00000003, VAX-11/730

*** UBA0:
*** UBA_BASE_ADR = 00FC0000
Unpopulated .... 00760000 - 00760336
Populated ..... 00760340 - 00760376
Unpopulated .... 00760400 - 00772146
Populated ..... 00772150 - 00772152
Unpopulated .... 00772154 - 00772516
Populated ..... 00772520 - 00772522
Unpopulated .... 00772524 - 00777776

-----

SUMMARY REPORT:
TOTAL # ERRORS = 0 (0 SYSTEM, 0 DEVICE, 0 HARD, 0 SOFT)
         dd-mmm-yyyy Time

```

Figure 2-1. VAX-11/730 Configuration Utility Display

2.3.2 VAX-11/750

The sample output presented in this subsection refers to a VAX-11/750 with the following configuration:

- Two RH750 disk subsystems at addresses $F28000_{16}$ and $F2A000_{16}$
- One UNIBUS adapter at address $FC0000_{16}$
- Two DMF32 communications multiplexers at addresses 760340_8 and 760400_8
- One TU80 tape drive at address 772520_8

In the following sample output, the address range $00F28400_{16}$ through $00F284FC_{16}$ represents address space for 32 external registers for each device, 0 and 1, from byte offset 400-4FC. Similarly, the address range $00F2A400_{16}$ through $00F2A47C_{16}$ represents space for 32 external registers for device 0 in this sample configuration.

Even though space for 32 external registers is available to the firmware for each device, the actual valid address range used for registers is device dependent, as described in each controller technical manual. Any attempt to access a register outside the range specified for a given device causes the illegal register bit to be set in the error register. To start the utility, enter the following LOAD and START commands:

```
EVM>LOAD IVV000<return>
EVM>START<return>
```

The following display will appear:

```
Emulex Config Utility  REV 1.0  dd-mmm-yyyy Time

TEST # 1  Configuration Utility
          dd-mmm-yyyy Time

-----CONFIG-----

CPU ID = 00000002, VAX-11/750

*** UBA0:
*** UBA_BASE_ADR = 00FC0000
Unpopulated .... 00760000 - 00760336
Populated ..... 00760340 - 00760436
Unpopulated .... 00760440 - 00772516
Populated ..... 00772520 - 00772522
Unpopulated .... 00772524 - 00777776

*** MBA0:
*** MBA_BASE_ADR = 00F28000
Populated ..... 00F28400 - 00F284FC      ! All drive 0 and 1
Unpopulated .... 00F28500 - 00F2850C      registers respond
Populated ..... 00F28510 - 00F28510      ! Drive 2 AS register
Unpopulated .... 00F28514 - 00F2858C
Populated ..... 00F28590 - 00F28590      ! Drive 3 AS register
Unpopulated .... 00F28594 - 00F2860C
Populated ..... 00F28610 - 00F28610      ! Drive 4 AS register
Unpopulated .... 00F28614 - 00F2868C
Populated ..... 00F28690 - 00F28690      ! Drive 5 AS register
Unpopulated .... 00F28694 - 00F2870C
Populated ..... 00F28710 - 00F28710      ! Drive 6 AS register
Unpopulated .... 00F28714 - 00F2878C
Populated ..... 00F28790 - 00F28790      ! Drive 7 AS register
Unpopulated .... 00F28794 - 00F287FC

*** MBA1:
*** MBA_BASE_ADR = 00F2A000
Populated ..... 00F2A400 - 00F2A47C      ! All drive 0
Unpopulated .... 00F2A480 - 00F2A7FC      registers
                                           respond
```

Figure 2-2. VAX-11/750 Configuration Utility Display

2.3.3 VAX-11/780

The sample output given below refers to a VAX-11/780 with the following configuration:

- One memory controller (TR 1)
- One UNIBUS adapter (TR 3) at address 20100000₁₆
- One DMF32 communications multiplexer at address 760340₈
- One TS11 tape subsystem at address 772520₈
- Two RH780 disk subsystems (TR 8 and TR 9) at addresses 20010000₁₆ and 20012000₁₆ respectively

Enter the following LOAD and START command to invoke the configuration utility:

```
EVM>LOAD IVV000<return>
EVM>START<return>
```

The following display will appear:

```
Emulex Config Utility  REV 1.0  dd-mmm-yyyy Time
TEST # 1  Configuration Utility
          dd-mmm-yyyy Time

-----CONFIG-----

CPU ID = 00000001, VAX-11/780

TR = 1

NEXUS other than UBA/MBA; TR = 1

TR = 3

*** UBA0:
*** UBA_BASE_ADR = 20100000
Unpopulated .... 00760000 - 00760336
Populated ..... 00760340 - 00760376
Unpopulated .... 00760400 - 00772516
Populated ..... 00772520 - 00772522
Unpopulated .... 00772524 - 00777776
```

Figure 2-3. VAX-11/780 Configuration Utility Display
(page 1 of 2)

TR = 8

*** MBA0:

*** MBA_BASE_ADR = 20010000

Populated	20010400 - 2001047C	! All drive 0 registers respond
Unpopulated	20010480 - 2001048C	
Populated	20010490 - 20010490	! Drive 1 AS register
Unpopulated	20010494 - 2001050C	
Populated	20010510 - 20010510	! Drive 2 AS register
Unpopulated	20010514 - 2001058C	
Populated	20010590 - 20010590	! Drive 3 AS register
Unpopulated	20010594 - 2001060C	
Populated	20010610 - 20010610	! Drive 4 AS register
Unpopulated	20010614 - 2001068C	
Populated	20010690 - 20010690	! Drive 5 AS register
Unpopulated	20010694 - 2001070C	
Populated	20010710 - 20010710	! Drive 6 AS register
Unpopulated	20010714 - 2001078C	
Populated	20010790 - 20010790	! Drive 7 AS register
Unpopulated	20010794 - 200107FC	

TR = 9

*** MBA1:

*** MBA_BASE_ADR = 20012000

Populated	20012400 - 2001247C	! All drive 0 registers respond
Unpopulated	20012480 - 2001248C	
Populated	20012490 - 20012490	! Drive 1 AS register
Unpopulated	20012494 - 2001250C	
Populated	20012510 - 20012510	! Drive 2 AS register
Unpopulated	20012514 - 2001258C	
Populated	20012590 - 20012590	! Drive 3 AS register
Unpopulated	20012594 - 2001260C	
Populated	20012610 - 20012610	! Drive 4 AS register
Unpopulated	20012614 - 2001268C	
Populated	20012690 - 20012690	! Drive 5 AS register
Unpopulated	20012694 - 2001270C	
Populated	20012710 - 20012710	! Drive 6 AS register
Unpopulated	20012714 - 2001278C	
Populated	20012790 - 20012790	! Drive 7 AS register
Unpopulated	20012794 - 200127FC	

SUMMARY REPORT:

TOTAL # ERRORS = 0 (0 SYSTEM, 0 DEVICE, 0 HARD, 0 SOFT)
dd-mmm-yyyy Time

Figure 2-3. VAX-11/780 Configuration Utility Display
(page 2 of 2)